Amendments to the Drawings:

The attached three (3) sheets of drawings include changes to Figures 1 and 2, and new Figures 3 and 4. These sheets, which include Figures 1-4, replace the original sheets including Figures 1 and 2.

In Figure 1 the legend "Prior Art" has been added.

Figure 2 has been amended so that there is only one signal going to the element 12 from element 10, and that there is only one signal coming out from element 26 and going to the printer. Also in Figure 2, the word "TAGS" between elements 14 and 20 has been amended to "TAGS TO CONTROL IMAGE PROCESSING".

New Figures 3 and 4 have been added. No new matter is introduced.

Attachment: Replacement Sheets (3)

REMARKS/ARGUMENTS

Reconsideration of the subject application is requested.

In the present Office Action, the Examiner objected to the drawings under 37 CFR 1.83(a).

In the present Office Action, the Examiner rejected Claims 1-2, 7, 12, 13, and 18 under 35 U.S.C. 112, second paragraph.

In the present Office Action, the Examiner rejected Claims 1, 3, 4, 6, 8-9, 12, 14-15, 17, and 19-20 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,590,676 to Karidi et al. (hereinafter "Karidi"); rejected Claims 2, 11, 13, and 22 under 35 U.S.C. 103(a) as being unpatentable over Karidi in view of U.S. Patent 6,535,633 to Schweid et al. (hereinafter "Schweid"); rejected Claims 5, 10, 16, and 21 under 35 U.S.C. 103(a) as being unpatentable over Karidi in view of U.S. Patent 5,572,599 to Tse et al. (hereinafter "Tse"); and rejected Claims 7 and 18 under 35 U.S.C. 103(a) as being unpatentable over Karidi in view of U.S. Patent 6,897,983 to Kawano et al. (hereinafter "Kawano").

In this response, Applicant presents various amendments and remarks believed to remedy the Examiner's rejections and objections, and place the claims in condition for allowance.

Claims 1-22 remain in the application.

Drawing Objections

As required by the Examiner, Figure 1 is designated with a legend "Prior Art", and labeled with "Replacement Sheet" in the page header.

As required by the Examiner, Figure 2 is amended so that there is only one signal going to the element 12 from element 10.

As required by the Examiner, Figure 2 is amended so that there is only one signal coming out from element 26 and going to the printer.

As required by the Examiner, Figure 2 is labeled with "Replacement Sheet" in the page header.

It is true that, under 37 CFR 1.83(a), the drawing in a nonprovisional application must show every feature of the invention specified in the claims. However, such features should be "any structural detail that is of sufficient importance to be described". (Ex parte Good, 1911 C.D. 43, 164 O.G. 739 (Comm'r Pat. 1911)) As further specified by the MPEP, such features should be "any structural detail that is essential for a proper understanding of the disclosed invention". (Section 6.22.01, MPEP)

Applicant respectfully submits that the "control image processing" in Claim 1 should not be shown in the figure, because it is not a structural element. In Paragraph [0012] of the original application, it is disclosed that "...tags...are fed into...output image processing module 20 to <u>be used to control image processing</u>." As such, the "control image processing" is an action element, rather than a structural element.

Applicant respectfully submits that "filtering and TRCs" in Claim 6 are specific embodiments of "said image processing". A skilled artisan would not fail to have "a proper understanding" of Claim 6, if those elements are not shown in the figure. By the same token, Applicant respectfully submits that "de-screen filters" in Claim 7 does not have to be shown in the figure, for the purpose of "proper understanding of the disclosed invention".

Despite of the above argument, Applicant has amended the drawings anyway so as to conclude the case as early as possible.

As required by the Examiner, "TAGS" in Figure 2, which is between elements 14 and 20, is changed to "TAGS TO CONTROL IMAGE PROCESSING". No new matter is introduced.

A new FIG. 3 is added to the application. FIG. 3 illustrates a specific embodiment of element 20 in FIG. 2. In FIG. 3, the output image processing module 120 retrieves the image data stored in memory. Image-processing functions such as filtering, Tonal Reproduction Curves or TRCs, and/or Rendering are performed therein based on the various segmentation tags stored therewith associated with each pixel of the image. Support for FIG. 3 can be found in original FIG. 1 and FIG. 2; and original Claims 1, 6, 12, and 17. No new matter is introduced.

A new FIG. 4 is added to the application. FIG. 4 illustrates a specific embodiment of element 20 in FIG. 2. In FIG. 4, the output image processing module 220 uses

different de-screen filters with various cut-off frequencies and enhancement filters. The filters are applied to the image based on pixel classification. Support for FIG. 4 can be found in original FIG. 1 and FIG. 2; and original Claims 1, 7, 12, and 18. No new matter is introduced.

Specification Amendments

Four paragraphs have been added to the original specification to reflect the newly added FIG. 3 and FIG. 4.

Two new paragraphs were added on page 3, starting at line 12, which is immediately after the third paragraph beginning on page 3, line 10. The two paragraphs serve as the brief description of the drawings.

Two new paragraphs are added on page 4, starting at line 24, which is immediately after the first paragraph beginning on page 4, line 5.

The first new paragraph beginning at line 24 on page 4, is supported by original FIG. 1 and FIG. 2; and original Claims 1, 6, 12, and 17. No new matter is introduced.

The second new paragraph immediately following the first new paragraph on page 4, is supported by original FIG. 1 and FIG. 2 and original Claims 1, 7, 12, and 18. No new matter is introduced.

Section 112 Rejection

As required by the Examiner, Applicant has amended "said image data" in Part D of Claims 1 and 12 to "said input image data", which as sufficient antecedent basis in Part A and Part B.

As required by the Examiner, Applicant has amended "said image processing module" in Part C of Claims 1 and 12 to "an image processing module".

As required by the Examiner, Applicant has amended Claims 2 and 13 to recite that "the tags indicate at least one characteristics of the image that are determined through segmentation".

As required by the Examiner, Applicant has deleted the term "various" in Claims 7 and 18.

Applicant respectfully submits that the term "enhancement filter" is clear to a skilled person in the art, and should not be objected to. For example, in U.S. Patent 6,185,328, "enhancement filter amplifies all higher frequencies, and the lowpass filter attenuates the higher frequencies". Also in U.S. Patent 6,782,129, "for text area, some sharpness enhancement filter could be applied and other rendering techniques such as thresholding or error diffusion could be used".

Patentability of Claim 1

Claim 1 has been further limited by "exploiting the resources of ... otherwise un-utilized output channels to provide imaging processing functions comprising filters, TRCs, halftoning modules, or rendering methods". Support for the amendment is in the first paragraph on page 4, starting at line 5. No new matter is introduced.

As such, Claim 1 is limited by a combination of two elements.

The first element is that the outcome of the method is black and white images with improved quality.

The second element is that the method is based on "tag-based color imaging systems in a color image path", and comprises the step of "exploiting the resources of ... otherwise un-utilized output channels to provide imaging processing functions comprising filters, TRCs, halftoning modules, or rendering methods".

Karidi fails to teach or suggest that the outcome of the method is black and white images with improved quality. For example, Karidi method processes one or more color formats, and uses "a preliminary color adjustment function", "a color conversion function", and "a color manipulation function". (Abstract) The color manipulation module is used "for adjusting brightness, color saturation, and contrast". (Claim 13) In Karidi's preferred embodiment, the procedure interpolates a color table from the input color space (i.e. RGB) to the output color space (e.g. RGB or CMYK) for the purpose of color conversion. (Lines 13-19, Column 5) In Karidi's figures, color signals are the output.

Karidi also fails to teach or suggest the second element, not to mention the combination of the first and the second element.

Schweid teaches away from the first element. For example, Schweid addresses the "need in single channel segmentation of color images for a method and apparatus

for reclassifying pixels which were inappropriately classified as belonging to the "black" or "white/background" class". (Lines 37-47, Column 3)

Like Karidi, Schweid also fails to teach or suggest the second element, not to mention the combination of the first and the second element. For example, the Schweid's apparatus includes a re-classification circuit receiving first classification data generated by a single channel segmentation circuit operative to classify pixels of a multi-color channel input image. (Abstract)

Tse fails to teach or suggest the first element too. Tse is directed to a color imaging process. (Claim 3) TSe teaches the converting of RGB data to a color space having a single luminance component and two chroma components. (Lines 21-25, Column 9)

Tse also fails to teach or suggest the second element, not to mention the combination of the first and the second element. Tse uses bypass circuits in the luminance processing circuit of the monochrome printing system, to make the architecture of an image processing module of a monochrome printing machine convertible to a full color printing machine. (Abstract)

Kawano fails to teach the first element, the second element, or the combination thereof. Kawano teaches an image processor which uses a spatial filter for moire removal or suppression. (Abstract)

CONCLUSION

Given the foregoing arguments, Applicant asserts that the rejection has been fully responded to and overcome. All pending claims are patentable. Therefore, Applicant respectfully requests that a Notice of Allowance be issued in this application.
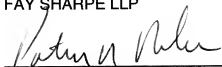
In the event the Examiner considers personal contact advantageous to the disposition of this case, he/she is hereby authorized to call Patrick R. Roche, at Telephone Number (216) 861.5582.

Applicants believe no fees are due with the submission of this document; however, if any fees are necessary, please charge Deposit Account No. 24-0037.

Respectfully submitted,

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Date